

CLAIMS

I CLAIM:

1. A pump rod clamp for gripping a pump rod in an oil, gas or water well, the
5 pump rod clamp comprising:
 - (i) a central housing having a longitudinal bore for receiving a pump rod;
 - (ii) a plurality of clamping members receivable within said central housing;
and,
 - (iii) one or more actuators to cause said clamping members to be moved
10 between an activated position where they grippingly engage the exterior
surface of the pump rod and a deactivated position where they are
released from contact with the exterior surface of the pump rod,
each of said clamping members having a leading face that includes one or more
gripping inserts releasably secured thereto, said gripping inserts having outer
15 faces generally aligned with the exterior surface of the pump rod and for
grippingly engaging the pump rod when said clamping members are in said
activated position such that force exerted by each individual clamping member
against the pump rod is concentrated and distributed over said outer faces of said
one or more gripping inserts of said individual clamping member.

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2. The device as claimed in claim 1 wherein the combined surface area of said outer faces of said gripping inserts upon each individual clamping member is less than the surface area of the portion of said leading face of said individual clamping member adjacent to the pump rod.
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3. The device as claimed in claim 1 wherein said central housing includes a pair of opposed radial bores generally perpendicular to said longitudinal bore and having interior ends terminating at said longitudinal bore, said pump rod clamp including two clamping members, each in the general form of a ram receivable
- 10 within said radially opposed bores.
4. The device as claimed in claim 1 wherein said gripping inserts are formed from hardened steel.
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5. The device as claimed in claim 1 wherein said outer faces of said gripping inserts have an arcuate shape generally corresponding to the curvature of the exterior of the pump rod.
6. The device as claimed in claim 5 wherein said outer faces of said gripping
- 20 inserts include ridges or teeth to enhance the gripping of the pump rod.

7. The device as claimed in claim 5 wherein said outer faces of said gripping inserts are coated with a ceramic material, said ceramic material enhancing the ability of said gripping inserts to grippingly engage the pump rod and providing an electrically insulative barrier between said pump rod clamp and the pump rod when said clamping members are in said activated position.
8. The device as claimed in claim 1 including a pair of clamping members radially opposed to one another within said central housing, when in said activated position said clamping members sealingly engaging against the pump rod and one another to limit the escape of fluids from the well.
9. The device as claimed in claim 8 wherein said clamping members include an elastomeric seal upon their leading faces, said elastomeric seal providing a sealing engagement between said clamping members and the exterior surface of the pump rod, and between the respective leading faces of said radially opposed clamping members.

10. A pump rod clamp for gripping a pump rod in an oil, gas or water well, the pump rod clamp comprising:
- (i) a central housing having a longitudinal bore for receiving a pump rod, said central housing including at least one pair of opposed radial bores generally perpendicular to said longitudinal bore and having interior ends terminating at said longitudinal bore;
 - (ii) a ram received within each of said opposed radial bores, each of said rams having a leading face generally directed toward the exterior surface of the pump rod; and,
 - (iii) one or more actuators to cause said rams to be moved within said opposed radial bores between an activated position where said rams grippingly engage the pump rod to limit rotational and axial movement thereof, and a deactivated position where said rams are disengaged from the pump rod,
- each of said rams including one or more gripping inserts releasably securable to their leading faces such that when said rams are in said activated position said gripping inserts contact the exterior surface of the pump rod, said gripping inserts having outer faces with an arcuate shape generally corresponding to the curvature of the exterior of the pump rod and coated with a ceramic material, said ceramic material enhancing the ability of said gripping inserts to grippingly engage the pump rod and providing an electrically insulative barrier between

said pump rod clamp and the pump rod when said clamping members are in said activated position.

11. The device as claimed in claim 10 wherein the combined surface area of said outer faces of said one or more gripping inserts on each individual ram is less than the surface area of the portion of the leading face of said individual ram adjacent to the pump rod such that force exerted by each individual ram against the exterior surface of the pump rod is concentrated and distributed over said smaller surface area of said one or more gripping inserts.

12. The device as claimed in claim 10 wherein said outer faces of said gripping inserts include horizontal, vertical, or horizontally inclined ridges or teeth.

13. The device as claimed in claim 10 wherein said leading faces of said rams include an elastomeric seal for sealingly engaging the exterior surface of the pump rod and for sealing engagement of the leading faces of opposed rams to limit the escape of fluids from the well.

14. A clamping blowout preventer for gripping a pump rod in an oil, gas or water well, the clamping blowout preventer comprising:
- (i) a central housing having a longitudinally oriented bore for receiving a pump rod, said central housing including at least two radially opposed bores generally perpendicular to said longitudinal bore and having interior ends terminating at said longitudinal bore;
 - (ii) a ram received within each of said radially opposed bores, each of said rams having a leading face generally directed toward the exterior surface of the pump rod, said leading faces of said rams including one or more gripping inserts releasably secured thereto;
 - (iii) at least one actuator to cause said rams to be moved between an activated and deactivated position, when in said activated position said rams driven inwardly toward the pump rod causing said gripping inserts to grippingly engage the exterior surface of the pump rod and to limit axial and rotational movement thereof, when in said deactivated position said rams retracted from the pump rod permitting said gripping inserts to be released from engagement with the pump rod; and,
 - (iv) a seal secured to each of said rams such that the seals on opposed rams engage both the exterior surface of the pump rod and one another when said rams are in said activated position, to limit well fluids from escaping from the well.

15. The device as claimed in claim 14 wherein said gripping inserts have outer faces that are arcuate in shape and that generally correspond to the curvature of the exterior of the pump rod.
- 5 16. The device as claimed in claim 15 wherein said outer faces of said gripping inserts of each individual ram have a combined surface area less than the surface area of the portion of said leading face of said individual ram adjacent to the pump rod such that force exerted by each individual ram against the exterior surface of the pump rod is concentrated and distributed over said smaller surface area of said one or more gripping inserts.
- 10 17. The device as claimed in claim 14 wherein said gripping inserts have outer faces that engage the pump rod when said rams are in said activated position, said outer faces of said gripping inserts coated with a ceramic material that enhances the engagement of said gripping inserts with the exterior surface of the pump rod and that presents an electrically insulative connection therebetween.
- 15 18. The device as claimed in claim 17 wherein said gripping inserts include horizontal, vertical or horizontally inclined ridges or teeth upon their outer faces.
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19. The device as claimed in claim 14 wherein said seals are comprised of elastomers, said elastomers further providing seals between said rams and said radially opposed bores to limit the passing of well fluids therebetween.
- 5 20. The device as claimed in claim 14 wherein the leading face of each of said rams includes an arcuate channel thereon, said arcuate channel in general alignment with the pump rod, said gripping inserts releasably secured to said rams within said arcuate channel.
- 10 21. A pump rod clamp for gripping a pump rod in an oil, gas or water well, the pump rod clamp comprising:
- (i) central housing having a longitudinal bore for receiving a pump rod;
 - (ii) a plurality of clamping members received within said central housing; and,
 - 15 (iii) one or more actuators to cause said clamping members to be moved between an activated position where they grippingly engage the exterior surface of the pump rod and a deactivated position where they are released from contact with the exterior surface of the pump rod,
- each of said clamping members comprising a ram received within a radial bore
20 extending through said central housing generally perpendicular to said longitudinal bore and having an interior end terminating at said longitudinal

bore, each of said rams having a leading face with an arcuate channel thereon for grippingly engaging the pump rod when said rams are in said activated position, said arcuate channel coated with a ceramic material to enhance the ability of said arcuate channel to grippingly engage the pump rod and to provide an electrically insulative barrier between said pump rod clamp and the pump rod when said rams are in said activated position.